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ADVERTISEMENT.

OBSERVATIONS
OF
Various Eminent Cures
OF THE
KING'S EVIL.

ADVERTISEMENT.

PArt of a New Version of the Psalms, which some of the LORDS Spiritual freely propos'd to recommend to the Parliament and Convocation; in order to get the whole Undertaking sustain'd, and approv'd, for the Service of the Church: And in which the Perspicuity and Coherence illustrate the Sense of the *Psalms*, equivalent to *Annotations*, not attempted before in any Language: With a *Preface*, containing Observations of the *Defects* of former Versions in *Greek, Latin, and English*. By Dr. GIBBS. The *second Edition Corrected*.

Printed for J. Hartley over against Gray's Inn in Holbourn; R. Simpson at the Harp in St. Paul's Church-Yard; and P. Teo, Bookseller in Exon. 1712.

OBSERVATIONS

OF

Various Eminent Cures

OF

Scrophulous Distempers

Commonly call'd the

KING'S EVIL;

Such as *Tumours, Ulcers, Cariosity of Bones, Blindness and Consumptions:*

With some New Considerations of the *Structure of the Glands, and of Animal Secretion; Of the Influence of the Moon on Human Bodies, Mechanically explain'd; and other PHÆNOMENA relating to the Causes of SCROPHULOUS DISEASES.*

To which is Added,

An ESSAY, Concerning the ANIMAL SPIRITS, and the Cure of *Convulsions:* Together with a SHORT ACCOUNT of the *Forms and Qualities of the Essential Particles of Salts and Sulphurs.*

By Dr. GIBBS.

L O N D O N :

Printed for, and Sold by *Ralph Simpson* at the *Harp*, and *W. Innys* at the *Princes-Arms*, both in *St. Paul's Church-Yard*; and *Philip Yeo*, Book-feller at *Exeter.* 1712.

THE
PREFACE.

THAT I have not been forward in publishing an Account of my Discoveries, relating to the Cure of the King's Evil, may appear in the following Treatise: Wherein the Reader may observe, that I had the Happiness to perform Various Cures of this Nature several Years ago; And I might still have omitted a Work of this Kind, had there not been an Occasion for the Publication hereof in Vindication of a Tryal at Law, at Launceston in Cornwall, in the Year 1710, whereof I shall give as short and True Account as I can.

The Preface.

In the Beginning of the Year 1706, I receiv'd a Letter from an Acquaintance of mine at Plimouth, describing the Case of a Lad grievously afflicted with the King's Evil, who had been Salivated for it several times to no purpose; desiring also to know if I would attempt the Cure: To which I answered, that, having been Successful in some such Cases, I was willing to see the Patient; Hereupon, his Father and He came to me at Tregoney, and his Father freely offer'd, and promis'd me a large Sum of Money, if I effected the Cure; Which accordingly I endeavour'd, and in a few Months afterward, I receiv'd a Letter, signifying that my Patient was effectually reliev'd; Hereupon I made him a Visit at Plimouth, which is about Forty Miles distant from my House; when I came thither, I not only found the Lad cur'd, but his Father also confess'd the same, and therefore offer'd me a parcel of Guinea's: But the Reward being far short of what I was promis'd, I refus'd it. For almost

The Preface:

Four Years after this, I never receiv'd any Account of this Lad, but that he was perfectly Cur'd : At last I commenc'd an Action against his Father, for the Sum he promis'd, or at least a Reward for my Labours for his Son. In the Tryal he endeavour'd by all means to conceal and disguise the Cure, tho' after it was over, he confess'd the same to me again : However, I Cast him for the Fees due for what I had done, which was the Chief Thing I aim'd at. Sometime after this, being inform'd of Various Discourses concerning this Tryal, in Vindication thereof, I thought fit to publish the following Treatise.

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OBSERVATIONS

O F
Various Eminent C U R E S
O F

Scrophulous Diseases.

HAVING thought fit to write
an Essay concerning *Scrophulous Diseases*, I apprehend it necessary in the first place, to caution the Reader not to expect an elaborate Treatise on this Subject, enrich'd with proper Methods propos'd for the Cure of these Distempers in all their Forms and

B

Varia-

Variations; because such a Work would require a long Time to adjust and perfect it: And therefore I shall not think my self oblig'd to be nicely accurate in the execution of my Design, but shall confine it to as compendious a Brevity as it will admit, intending chiefly to exhibit some Considerations of the Causes and Observations of Various Eminent Cures of *Scrophulous Diseases*.

In order to perform this, we shall have occasion to review the Animal Oeconomy, with the assistance of Physiological Speculations, conducive in some measure to a true Theory, and productive of Practical Inferences in the Cure of Distempers of this kind: And if in the Performance of this small Undertaking we discover any Philosophical Truth, or rational Solutions

ons of *Phænomena* in Human Body, or any thing instructive in the Cure of Distempers to which it is liable; it may be a sufficient Satisfaction and Compensation for a short application of our Thoughts to this Subject.

If we take a view of what the most eminent Authors have said of this Disease, we shall find their Notions of it to be of little Use, and very few Accounts of their Success in curing Disorders of this Nature.

As to the Cause of *Scrophulous Diseases*, they seem to agree, That it is a Coagulating Acid, somewhat Stiptic, which by condensing the Lymph, causes Tumours and Ulcers in the Lymphatick Glands: Which *ETMULLER* confirms in the following Words: *Lympha viscida & vitiosa simulq; sapore nonnihil astringente, & austero prædita, ab*
B 2
acido

acido multo imprægnata, si in poris & meatibus glandularum colligatur, coaguletur, & ab acido proprio inspissetur ac ibidem indurescat ; dat Tumores Glandarum quos vocant Strumas seu Scrophulas.

W I S E M A N also computes *Strumous* or *Scrophulous* Swellings and *Ulcers* to proceed from a coagulated Lymph.

BARTHOLIN testifies, That the Lymph, tho' 'tis naturally insipid, yet sometimes it becomes subacid, Acid, sometimes Saltish with a little Acidity, *Anatom. Barthol. p. 632.* In the same Place he considers the Use of the Lymph, and attributes many Distempers to the Defect, Excess, or vitiated Quality of it.

Among

Among the remote Causes, *Van Helmont* reckons Sadness, or a long Dejection of the Spirits; observing that a dread of Poverty had occasioned *Madness* in some Persons, and *Scrophulous Disorders* in others: *Tristitia paupertatis insaniam adduxit, aliis vero Scrophulas peperit.* *Helmont*, p. 442. & p. 450. *Vidi enim sæpius mulieres alias quibus denique lenta continuataq; tristitia Amentiam hypochondriacam moverat, imò & alibi Scrophulas causaverat.*

This shews that a Defect or Depression of the Animal Spirits is sometimes the Cause of *Scrophulous Diseases*; Into the Reason whereof, we shall have opportunity to examin hereafter.

RIO LANUS affirms, That the Seat and Root of all *Strumous Disorders* in the whole Body, are originally

iginally in the Mesentery, and that they never break out, unless the Mesentery be first *Strumous*: Nor is He the only Author who by Dissection has found the Mesentery deform'd and disorder'd with *Scrophulous Tumours*.

On the contrary, *BARTHOLIN* observ'd, that many Persons afflicted with *Scrophulous Disorders* have had the Mesentery sound. *Anat. Barth. p. 103.*

In relation to This, I know a Person, formerly subject to *Strumous Ulcers*, who after eating any sort of Flesh-Meats suffer'd a great Disorder and melancholy Dejection of the Spirits; and therefore commonly avoided such sorts of Food: Which Observation seems to Testify, That there remain'd a *Scrophulous Disorder* in the Mesentery, or Parts adjacent. *ET.*

ET MULLER suppos'd, That *Strumous Disorders* seldom invaded any other Part but the Neck, which abounds with Glands, tho' sometimes he confesses they have been found in the Mesentery: But this Notion of his is found Erroneous by common Experience, and we know that few parts of the Body are exempt from the Effects of *Scrophulous Causes*: Nay the Blood it self suffers most dangerous Alterations, occasion'd by a *Scrophulous Corrosive Acid*; and hence proceed *Hectical Colliquations* and *Consumptions*: Sometimes the *Aqueous Humour* of the Eye is either coagulated, or condens'd, or at least by the admission of a thicker Liquid into it, becomes so opake, as to cause *Blindness*: Sometimes the Bones, by a *Corrosive Scrophulous Acid*, become
 Carious,

Carious, and from hence Exfoliations appear.

Sometimes the Passages of the Spirits are so obstructed in the Nerves, as to produce *Paralytic Impediments*, and at other times the Spirits are irritated into *Convulsive Ferments*, and all those Disorders appear to proceed from a *Scrophulous* Original in Persons afflicted with other *Strumous Symptoms*, and are all remov'd by Medicines appropriated to the Cure of *Scrophulous Diseases* only. As the following *Observations* will testify.

“ In the beginning of November,
 “ in the Year 1706. Mr. John May,
 “ of Truroe, brought his Daughter
 “ to me, she was then about Six-
 “ teen Years of Age; and as soon
 “ as I saw her, I imagin'd that she
 “ was not afflicted with a common
 “ *Chlorosis*,

“ *Chlorosis*, but that her Disorders
 “ proceeded from a *Scrophulous* Ha-
 “ bit of Body, and that which led
 “ me to these Thoughts, was the
 “ clear Whiteness of her Face, very
 “ Pale, and without the least ten-
 “ dency to any Colour, such as I
 “ never saw before, nor since; and
 “ accordingly upon Examination I
 “ found the following

*Various Symptoms proceeding
 from Scrophulous Causes.*

“ She had formerly been afflicted
 “ with Tumours in her Neck, and
 “ when she was an Infant those Tu-
 “ mours were Ulcerated: Some-
 “ times her Lips on a sudden would
 “ swell and grow black; She had
 “ a *Diarrhæa*; Violent Pains in her
 “ Head, and sometimes in her Breast,
 “ attended with a great Heat; a

“ *Chlorotic* Obstruction of the *Men-*
 “ *strua* ; frequent Pains resembling
 “ the *Colic* : Sometimes her Tongue
 “ would be fixt by a *Paralytic* Incum-
 “ brance, so as to deprive her of
 “ Speech ; sometimes her Fingers,
 “ especially of the right Hand, would
 “ suffer a *Convulsive* Contraction.
 “ Some Evenings she was troubled
 “ with *Pain* in her Tongue, and fre-
 “ quently her *Hectic* Heats would
 “ incline her to Sleepiness, and
 “ at other Times, but commonly
 “ about eight a Clock in the Even-
 “ ing, her Heats would occasion a
 “ great *Faintness*, and an *Hysterick*
 “ *Disorder* of her Spirits. In this
 “ Condition she was reduc’d to such
 “ Weakness, that a little Walking
 “ was more than she cou’d bear :
 “ This is an Account of her Dis-
 “ orders, as it stands in my Book
 “ from that Time to this ; only I
 “ have

“ have omitted one Symptom more,
 “ which was, a *Loss of Appetite*.
 “ Having consider’d this Case, I
 “ prescrib’d a Mixture, which in a
 “ little time freed her from the
 “ Pains in the *Intestines*; and ’tis
 “ observable, That tho’ the Mix-
 “ ture was cold in the Mouth, yet
 “ she found it warm in her Stomach,
 “ which I look’d upon as a good
 “ Sign, that the Medicine was en-
 “ countring the *Morbific Cause*, and
 “ thence the Disturbance and Heat
 “ proceeded. But the chief Obser-
 “ vation which I propose to make,
 “ is, That all the forementioned
 “ Symptoms were remov’d by de-
 “ grees, without the Assistance of a-
 “ ny other Medicine, except an *Hy-*
 “ *stERIC Fulep*, but what I directed
 “ chiefly to the Destruction of *Scro-*
 “ *phulous Causes* and *Effects*: And
 “ the Patient was in a few Months
 C 2 restor’d

“ restor’d to Health, and ever since
 “ has been of a strong and healthy
 “ Constitution.

*Of Blindness, occasioned by a
 Scrophulous Incrassation of
 the Watery Humour of the
 Eye.*

“ In the same Year I had another
 “ Patient, whose Name was *M.*
 “ *Kittow*, of *Tregony*, aged about E-
 “ leven Years; she had formerly
 “ been afflicted with *Scrophulous Swel-*
 “ *lings* and an *Ulcer*, but at that
 “ time was disorder’d with *Pain* in
 “ her *Head*, and sometimes in her
 “ *Eyes*, and was so *Blind* on one
 “ Eye, that she could only distin-
 “ guish in what part of the Room
 “ the Window was, as any one may
 “ do with his Eyes shut, thro’ the
 “ *Pellucidity*

“ Pellucidity of the Eyelids. This
 “ Girl had her Eyesight restor'd in
 “ a short time, and has ever since
 “ remain'd sound, and free from
 “ any signs of the *Evil*, or the fore-
 “ mentioned Symptoms.

It will not be impertinent to what
 has lately been said in the prece-
 ding Paragraphs, to add another Ob-
 servation in this place, concerning
 the Cure

*Of a Carious Exfoliation of a
 Bone by the Evil.*

“ In the Year 1710. a Boy of the
 “ Parish of *Goran* came to me, com-
 “ plaining of an *Ulcer* in his *Thigh* ;
 “ whereupon I advis'd him to con-
 “ sult a Chirurgeon, to whose Bu-
 “ siness *Ulcers* belong, and not to
 “ Mine ; but viewing the Sore, I
 “ found it to be *Scrophulous*, as it was
 “ thought

“ thought to be, and therefore the
 “ Care of it was recommended to
 “ my Charge ; and accordingly I
 “ prescrib’d Internal Medicines, and
 “ as a Defensative, only apply’d *Dia-*
 “ *palma* to the *Ulcer* ; considering
 “ his Constitution, I expected to
 “ have cur’d him sooner than it suc-
 “ ceeded ; till at last I found the rea-
 “ son of my Disappointment in the
 “ Exfoliation of a *carious Bone* ; and
 “ soon after that the *Ulcer* healed,
 “ and the Lad has been sound ever
 “ since.

This Exfoliation, and the Cor-
 rosion of the *Periostium* in order to
 it, happened with very little Pain,
 because the *Scrophulous corrosive Acid*
 operated very slowly.

I think it needless at present to add
 any other Testimony, that neither
 the *Nerves*, nor the Humours of the
 Eyes,

Eyes, nor the *Bones*, nor the *Blood* it self, and few parts of the *Body* are secure from the dangerous Effects of *Scrophulous Causes*; let us therefore proceed, as we at first design'd.

If we search the most Eminent Authors in pursuit of a Cure for this Distemper, we shall find our selves miserably disappointed. *ET-MULLER* recommends Discussives to the Tumours. But, besides common Experience, that they are of little or no Use, there is no need of any great force of Argument to prove them to be of dangerous Consequence; for if *Strumous Tumours* proceed from a *coagulating Acid*, by repelling This from one part to another, we are so far from destroying the Cause of this Distemper, that we hereby expose all the other Parts of the Body to it.

And

And thus I have observ'd, That a *Scrophulous Humour* has been removed from the Eyes, and being return'd into the Blood, has so dissolv'd and destroy'd it, that the Patient, in a very few Days, has been emaciated to a very dangerous degree, and both the Blood and Fibres of the Muscular Flesh have been so wasted, that Death seem'd to approach as hastily as in an Acute Distemper; and the said Patient would probably have been destroy'd in a short time by this violent Colliquation, occasioned by a *Corrosive Scrophulous Acid*, had we not put a stop to it by some Medicines, which by a *bitter coercive Sulphur* strengthened the Contexture of the Blood; and by that means prevented its Dissolution, and enabled it to dismiss the *Corrosive Acid* into some of the extreme Parts, whereby we gain'd

bnA time

time to destroy the *Scrophulous Cause* of this Disorder with less danger.

WISE MAN, in his Discourse concerning *Scrophulous Distempers*, recommends a vast number of Medicines for the Destruction of the Cause of *Strumous Disorders*, without preferring one before another ; which shews that he knew not any one Method which could be rely'd on as a Foundation for a general Practice in curing this Distemper ; and This appears more plainly confirm'd by his Confession, that he very seldom knew *Scrophulous Tumours* cur'd, but by Extirpation.

Let us now proceed to some Considerations concerning the true Causes of *Strumous* or *Scrophulous Diseases*.

And in the first Place it appears plain enough, that a *Scrophulous* or
D *Strumi-*

Strumific Acid, is peculiarly adapted to coagulate the *Lymph*, and condense it in the *Lymphatic Glands*, as *Aqua Fortis* is dispos'd to corrode Silver, &c. but not Gold; and therefore it will be convenient to examine the Structure and Use of these *Glands*, and the manner of their *Secretion*.

Of the Glands, and of Animal Secretion.

Of *Glands* there are various sorts.

A *Gland* is a small Body, commonly somewhat Globular, placed at the extremity of Arteries in most Parts of the Body, having Vessels belonging to it, besides the *Artery*, to wit, a *Vein*, a *Nerve*, and an *excretory Duct*.

Some

Some Modern Anatomists, *viz.* *BELLINI* and *NUCK*, have asserted, That a *Gland* is nothing but a Convolution of Arteries ; but this Account of their Structure is not sufficient, as it will appear from the following Reasonings.

For if the *Glands* were nothing but Convolutions of Arteries, whence proceed the various Substance of *Glandular* Parts, as there is in the *Lymphatic*, *Hepatic*, *Pancreatic* and other *Glands* ?

Besides, tho' the *Glandular Tube* may seem to be nothing but a Continuation of the Artery, as it were coil'd up round together, yet we must allow, that where the secern'd Liquor is separated from the Arterial Blood, there the Artery terminates, and there begins the *Secretory Duct*, and there also the *Vein*

is inserted ; for where should the *Vein* re-imbibe the Reliques of the Arterial Blood, but where the *Secretion* begins, and where the *Artery* deposits it ? This I take to be the true Notion of the Structure of the *Glands*, and the manner of *Animal Secretion*.

But there are two Things at least, which contribute to the Variety of *Secretions*, which seem to be these, viz. The Length of the Diameter of the *Secretory Duct*, and the constrictive Force of it ; which last is chiefly owing to the *Parenchyma* of the Glandular Part, and the Turgescence of the *Spirits* in the *Nerve* which belongs to it ; to these two we may add, according to *KEILL*, the Velocity of the Blood in those Parts wherein the *Gland* is plac'd : But we shall chiefly consider the two first mentioned, and omit
the

the latter, because the *Lymphatic Glands* are plac'd at various Distances from the Heart; and yet the different Velocity does not alter their Secretion.

Nothing seems to be more rational than to allow, That the Orifice of the *Glandular Secretory Duct* is of a shorter Diameter than that of the *Artery*; and hence the discern'd Liquor, which is thinner than the Blood, is separated from it, and the grosser Reliques of the Blood are re-absorb'd by the *Vein*, which is capacious enough to receive it, and re-convey it towards the Heart, to be mixt with the whole Mass of Blood again in its Circulation. To illustrate this, We find by Microscopes that the Blood naturally consists of *red Globules* swimming in an *Aqueous Fluid*. These *Globules* are a Composition of *Salts* entangled

entangled in Oily or *Sulphureous* ramous Particles, which naturally contract themselves into a globous Figure, as we see Oil mixt with Water will do. Now these *red Globules* of the Blood, by the Firmness of their Contexture, and by their Degree of Magnitude, are prevented from an Admission into the *Secretory Duct* of any *Gland* in the whole Body, in its natural State.

On the other hand, the secern'd Fluid, consisting of more minute Particles, is forced into the secretory Duct by the *Pressure* of the Arterial Pulsation: Thus the *Lymph*, which is a Liquor consisting of some few Volatile Salts, and some thin Sulphureous Particles, floating in an Aqueous Vehicle, is protruded thro' the *Lymphatic Glands*: the Insipidness of it in its natural State shews, That it does not abound with any
more

more Salts, than what is necessary to give it a gentle Ferment; and that the Ferment of the *Lymph* is naturally no more than a Gentle Ferment, we may conclude by this Observation, That the *Lymphatic Glands* are of no strong nor firm *Make* or Composition, neither are the natural Particles of the *Lymph*, as we have here represented them, dispos'd for any great Fermentation; but that the *Lymyb* gains *some* additional Ferment in its Passage thro' the *Lymphatic Glands*, will appear from the following Arguments.

But here it may not be amiss to observe, That there seems to belong to some of the *Glands* another Office besides *Secretion*, which has not as yet been duly consider'd, which is by a Constriction of the *Gland* to unite and make a Cohesion of different Particles of the secern'd Liquor,

quor, and hence results a Fluid, which was not præ-existent in the Blood ; and also hence it is, That a Composition of *Salts* and *Sulphurs*, united and made to cohere by the Pressure of the *Hepatic Glands*, produces Bile *violently bitter*, whereas there can by no means be perceiv'd any such Taste in the Blood : But if a few Drops of Bile be mixt with a large quantity of Blood, they will immediately impart a Bitterness to it ; which shews that a bitter Composition of Salts and Sulphurs (without which no Bitter can be produc'd) was not præ-existent in the Blood, but compounded in the *Glands* of the *Liver*.

But besides the *secretory* and foresaid *composing* Office of the *Glands*, they have also another Use which is *Fermentative* : For a fermenting Liquor, such as the *Hu-*
mours

mours of human Body are, being filter'd thro' the *Glands* by the Pressure of the Arterial Blood, protruded by the Pulsation of the Heart, and squeez'd out by the *constrictive* Motion of the Nervous Membrane of the *Gland*, re-acting against the said Arterial Pressure; cannot but be put into a greater Ferment, as we see in such Liquors strain'd thro' a Cloath, and prest out, the Pressure visibly increases the Ferment of the Liquor, and shews it in small Bubbles or a froathy Turgescence.

Having thus observ'd a *Constrictive Use* of the Nervous Fibres, which are allow'd to every *Gland*: If we examin the Cause of this Constriction, we shall better apprehend the Effects of an Excess or Defect of it: In order to do this, we must take a short View of the *Animal Spirits*.

Of the Animal Spirits.

That Some there are, who have deny'd or doubted the Being of *Animal Spirits*, one Reason may be, because They knew not what to make of them ; like Atheists, who are not free to acknowledge a *Deity*, because they think it not convenient for them that there should be any such Being.

BUT that there is such a Fluid, as we term *Animal Spirits*, must necessarily be granted from several Phænomena of *Sensation* and *Muscular Motion*, both of which are suspended in a Part, whose Nerve is comprest by a Ligature ; the Consequence of which must be such a Co-arctation of the Nervous Fibres, that the Spirits they contain, can neither move *progressively*, to perform

form Muscular Motion, nor *retrograde* to produce a Sensation. And this Observation I think at present sufficient to prove the Existence of *Animal Spirits*, and that they descend and re-ascend thro' the Tubes of Nervous Fibres of the whole Body: That no Cavity can be discover'd in the Tube of a Nervous Fibre, is no Argument that there is no such Cavity, in regard that if the Hole was discernable, by which the Spirits pass thro' a Fibre, it might be unfit for the Passage of so fine and rarify'd a Fluid, as the Spirits are.

I shall therefore in the next place compare the *Animal Spirits* to the Vapours of generous Fermenting Liquors, which we know are of such Force, as frequently to break the Vessel which contains them. I might farther assert, That they are of the

E 2

same

same Nature, and the like Composition as such Vapours are, because *Animal Spirits* are most producible out of such Liquors.

This Spirituous Vapour therefore descending thro', and filling the Cavity of the Nervous Fibres, are in a sort of *Turgescence* as Fermenting Liquors are. This Turgescence in the Fibre causes a Contraction of the Fibre in its length, as a Rope being wet, grows shorter; and this Contraction must necessarily produce a Constriction of the Glandulous Membranes, which the Nervous Fibres surround and encompass.

From all this it follows, That a defect of the *Animal Spirits* will cause a Relaxation of the *Gland*, and such a Relaxation will prevent both the Fermentative Operation and just Secretion of the *Gland* so relaxt. Hence various Effects are produc'd;

As

As first, in Hysteric Persons, This Relaxation opens a way to a great deal of the Serum of the Blood, which appears in the increast quantity of Water. Secondly, In dying Persons, This Relaxation lets go the Serum, without uniting with it the Urinous Salts; whence their Water is insipid or sweetish, and not from any defect of the *Vital Acid of the Stomach*, as *TACHENIUS* fancies. From the like Laxity of the Renal Glands, sometimes undigested *Chyle*, and sometimes the Blood it self is evacuated through the Kidneys.

Thus also an Interruption of the *Vigilative Expansion* of the Animal Spirits in Sleep, produces a Relaxation of *Lacteal Glands*, because in Sleep the Progressive Motion of the Spirits thro' the Nervous Parts, is in a great Measure, if *not totally* suspended; which is the Cause that
the

the *Chile* passes too hastily and unelaborated into the *Blood* ; and consequently Sleeping on a full Stomach causes an Indigestion, or at least a hasty Digestion, unless the Turgescence of the Spirits, by the agreeableness of what is taken into the Stomach, makes amends for the retarded and diminish'd Progress of the Spirits in Sleep.

Lastly, To come nearer to our present Purpose ; Sometimes it happens that *Sadness* diminishes the Spirits, and obstructs their Turgescence to that degree, That they leave the Nervous Membranes of the *Lymphatic Glands* Weak and Lax, consequently the *Lymph* will be unfermented and unelaborated, and by that Means expos'd to an easy Coagulation into *Scrophulous Tumours*, as *VAN HELMONT* observ'd, and we before mention'd.

Having

Having thus consider'd the *Structure* of the *Glands* in General, and particularly the *Lymphatic Glands*, their Use, and by what Means they are enabled to perform their Offices, let us proceed to consider the *Lymph*, the Composition, and the Use thereof.

The *Lymph* is a Liquor somewhat Spirituous, separated, as aforesaid, by the *Lymphatic Glands*, containing some Volatile Salts and Some Sulphurs, all floating in a Watery Fluid; the Volatile Salts being apt to exhale, they may sometimes leave the *Lymph* of too *thick a Consistence*: On the other Hand, the Sulphurs, which the *Lymph* contains, render it liable to *Coagulation* by an *Acid*; as Milk is Coagulable by Vinegar, and other acid Liquors: And hence it is,
That

That the *Lymph* is so easily Coagulated by an Acid, and thence arise Scrophulous Tumours, which afterwards become Ulcerous; namely, because the *Lymph* is a Mixture of Watery and Oily Parts, in some Measure like those of Milk.

This Spirituous Liquor, secern'd by the *Lymphatic Glands* from the Arterial Blood, leaves the *Venal* Blood, therefore more Gross, Sluggish, and Dispirited, and consequently has its peculiar Use, which we are now to consider.

The *Lymph*, being thus secern'd, is convey'd by the *Lympheducts* to the *Receptaculum Chyli* and *Thoracic Duct*, by which the Chyle is transmitted into the Blood by the *Subclavian Vein*. Hence we may be satisfy'd, That the chief Use of the *Lymph* is to borrow a Volatile Salt, lenify'd by a thin Sulphur from the
Arte-

Arterial Blood, to be mixt with the Chile, in order to dilute it, and to give it a Spirituous Ferment, and prepare it for its Mixture and Fermentation with the Blood, and more ready Assimilation with, and Transformation into Blood.

Now considering that the chief Tendency and Course of the *Lymph*, by the Lymphatic Vessels, is to the said Receptacle of the *Chile*; 'tis no Wonder, that the *Lymph*, tainted with a *Scrophulous Acid*, should frequently produce *Strumous Tumours* among the Glands of the Mesentery, as *RIOLANUS* has observ'd.

I give it the Name of a *Scrophulous Acid*, because it is peculiarly adapted to produce *Scrophulous Disorders* of the *Lymph*. All sorts of Salts whatsoever, admitted or existent in human Body, have an Operation on it, or some Part of it,

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accord-

according to the Form, Magnitude and Solidity of every essential Particle of the said Salts, or their Composition with Sulphureous or other Particles, and according to the Composition and Contexture of the Part on which they operate.

This being premis'd and undeniable, let us make Use of Observation again, to direct us to a better Knowledge of a *Scrophulous* or *Strumific* Salt.

First, That it is *Acid*, is plain, from its *coagulative* Effects, which are produc'd by Particles of Salt, which are *long* and *sharp pointed*, and can be no otherwise dispos'd for Coagulation, which is a Transfixing, and as it were, a Nailing together; and by that means accumulating the Sulphurs of the *Lymph* into

into a Curd-like Mass, from whence arises a *Tumour*.

Secondly, That the essential Particles of a *Strumous Acid* are *minute* and *subtile*, we may positively infer, from the Two following Observations : One whereof is, That this *Acid Salt* is easily admitted into the *Lymphatic Glands*, whose Orifice, as has been said, are not large enough to receive any of the gross Particles of the *Blood* or *Serum*, the fixt Salts whereof are evacuated chiefly by the *Renal Glands* and Urinary Passages. Another Observation confirming, That a *Scrophulous Acid* is compos'd of *small Saline* Particles, may be drawn from the Disposition of this *Acid* to *Corrosiveness*, as very often appears in its Effects ; for we cannot well imagin that *Corrosion* can be the Effect of a *gross Salt*,

F 2

but

but of a *minute*, and consequently an *Active Particle*.

Thirdly, That the Particles of a *Strumific Acid* are very *solid*, we may collect from the forementioned Corrosiveness; for the Bones being Bodies of considerable Solidity and Hardness, the Points of the Particles of the *Scrophulous Acid* would be broken in their Operation, were they not stronger, and more solid than the Bones which they corrode.

From the foregoing Considerations, That a *Strumific*, or *Scrophulous Salt* consists of *solid, minute, and sharp-pointed* Particles, we may infer how naturally adapted these are to produce those various Effects and Symptoms, which appear in Persons afflicted with this sort of Distemper.

In

In the *Lymphatic Glands* this *Acid* first makes a Coagulation of the *Lymph*, thence arises a *Tumour*: At length, by the Motion which the Heat of the Body imparts to it, it dissolves the *Tumour*, and makes an Eruption of it, and thence proceeds an *Ulcer*.

When this *Acid* has penetrated the *Periofteum*, it corrodes the Bones, and renders them *Carious*: At another Time when this *Acid* has disingag'd it self from the Sulphurs which are apt to entangle it in some of the Glandular, or other Parts; and is hurry'd up and down in the *Blood*, the *Blood* at the same time being of a tender Contexture, hence proceed *Hectical Colliquations*; for such a *Solid, Active, Pointed Salt*, as we have describ'd a *Scrophulous Acid*, being admitted into the *Blood*, not fetter'd by any Cohesion of Sulphureous.

phureous Particles ; 'tis no wonder, that such a Salt being tofs'd too and fro in the Serum of the Blood, should *invade* and *lacerate*, and, by a Hectic Ferment, *dissolve* and *destroy* the *Globules* of the Blood : And at the same Time not only prevent the Nutrition of the Muscular Fibres, but also prey upon, tear and waste them ; and hence appear *Scrophulous Consumptions*, such as we have before describ'd.

The same *Acid*, when the Points thereof penetrate and wound the Fibres of the *Intestines*, is dispos'd to create Pains, resembling those of a *Colic*.

The same being admitted into the *Succus Nervorum*, sometimes coagulates and condenses it ; and this Stagnation and Incrassation of the *Succus Nervosus* causes such a Pressure upon the Fibres of the Nerve,

as prevents the Progression of the *Animal Spirits*, and consequently produces a *Paralytic* obstruction in the Part, to which that Nerve belongs. For, whatever Chimerical Notions some *Physicians* have entertain'd of the *Succus Nervosus*, I think it most reasonable to compute the Use of it to be design'd chiefly to *lubricate* and fill the Interstices of the Fibres of the Nerves : And the Depravations of this *Nervous Juice*, to which it is often expos'd, are the common Causes of the Diseases, which appear in the *Genus Nervosum* : But to proceed.

When a *Scrophulous Acid* is admitted into the *Succus Nervorum*, and the Points thereof irritate and hurt the Nervous Fibres ; hences arises an *irregular Ferment* in the *Animal Spirits* contain'd in those Fibres, such as excites *Convulsive Disorders* in

in the Parts, to which those Nerves appertain.

And now we have explain'd the various Operations of a *Scrophulous Acid*, whereby it produces such different Effects ; as *Tumours*, *Ulcers*, *Cariosity of Bones*, *Hectic Dissolutions* of the *Blood*, *Pains*, *Palsies* and *Convulsions*.

These Considerations of the Causes of *Scrophulous Diseases*, as I apprehend them highly Reasonable, so I hope may be sufficient in a short *Essay*, since I do not now propose to write an Elaborate Treatise of these Distempers.

Having taken a short View of the *Causes*, let us proceed to some Considerations concerning the *Cure* of *Evils*, or *Scrophulous Diseases*: In Order to which, We should remember that 'tis asserted, That *Scrophulous Effects* proceed from a peculiar

peculiar *Form*, *Magnitude* and *Solidity* of some *Saline* Particles: To which we may add the *Form* and *Magnitude* of their *Pores*; for as these differ, they will contribute to produce different Effects, which we have not time in this Place to consider: The Consequence of all this will be, That as there is a peculiar Disposition of Particles in the *Cause*, so there must be also in those which destroy the *Cause*, and operate accordingly in performing the *Cure*; to which we should add the assistant Qualities of other Medicines, which remove the Effects already produced, as by *Evacuation*, &c. And thus I have observ'd in *Venereal Cases*, I mean, such as are advanc'd to high degree (for an Incipient *Gonorrhœa* is easily cur'd by other Medicines) nothing is so apposite and adapted for their Cure, as some

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Mercurial

Mercurial Preparations, which, I have taken notice have succeeded, without *Salivation*, and that the more effectually, the less the *Mercurial Particles* have been confounded and encumber'd by other *Saline* or *Sulphureous* Ingredients.

And here if we consider the Reason, why *Mercurial Preparations* are peculiarly dispos'd to destroy the Cause of *Venereal Distempers*, we may compute this Effect to proceed from a Quality in *Mercury*, opposite and contrary to the nature of *Sulphurs* in General; and that the Cause of *Venereal Diseases* chiefly consists of *Putrid Sulphurs*, The *Fibres* of which *Sulphurs* the Ponderous *Mercurial Particles* are formed and fitted to break in Pieces, as well as to evacuate; and thus by degrees the *Putrefactive Ferment* is remov'd and suppress'd

But

But that *Mercurial* Preparations are not furnisht with such Particles, as destroy *Scrophulous Acids*, may be collected from the following Accounts:

Observations, that Mercurial Preparations are not adapted to destroy Scrophulous Causes.

“ The Son of Mr. D---by of *Pli-*
 “ *mouth*, whom I have mention’d
 “ in the *Preface*, being several
 “ times Salivated before any Appli-
 “ cation was made to Me for his
 “ Cure; it was observable, That
 “ the Evacuation reduc’d his *Ulcer*
 “ to a small Compass; but soon af-
 “ terward it wou’d expand it self
 “ again as far, if not farther than
 “ before; This *Mercurial Method*
 “ there

“ therefore several times us’d and
 “ found Useless, was laid aside long
 “ before I had the Charge of him :
 “ But the ill Effects of it were not
 “ suppos’d to be so soon over : For
 “ when I talk’d with his Father,
 “ after our Tryal, he did then
 “ again so far own the Cure, which
 “ was deny’d, and artificially con-
 “ ceal’d in the Tryal, that he ac-
 “ knowledg’d, that he apprehended
 “ nothing amiss in his Son’s Consti-
 “ tution, but what might be the ill
 “ Effects of *Mercury* ; and when I
 “ answered, That I thought I cou’d
 “ readily prescribe a Method to de-
 “ stroy those *Mercurial* Reliques ;
 “ his Reply intimated, That there
 “ was no Occasion for such a Pre-
 “ scription. This inveterate *Ulcer*
 “ I cur’d without the Use of any
 “ *Mercurial* Preparation, but by a
 “ large Composition of Medicines ;
 “ for

“ for the Quantities and Ingredi-
 “ ents of which, having reserv’d no
 “ particular Reasons, I cannot well
 “ account for them. But that *Mer-*
 “ *curial* Medicines are not adapted
 “ to the Destruction of *Scrophu-*
 “ *lous Causes*, we may be more fully
 “ perswaded by the following Hi-
 “ story,

Of a Scrophulous Consump-
tion, with several Ulcers,
and Disorders of the Eyes,
Cur’d without Mercurial
Preparations.

“ *Mr. Thomas Tonken* of *Tregony*,
 “ having a Child afflicted with a
 “ Disorder in her Eyes, consulted
 “ an Eminent and Experienc’d *Chi-*
 “ *surgeon*, and Practitioner in *Physic*,
 “ of *Plimouth*, because his Success,
 “ as

“as he had been inform’d, had
 “given him the Character of a
 “Skilful *Oculist*. This Disorder in
 “her *Eyes* prov’d to be *Scrophulous*,
 “and afterwards was attended with
 “several *Tumours* and *Ulcers* in se-
 “veral Parts of her Body. This
 “little Girl having made Use of
 “the foremention’d *Chirurgeon’s* Pre-
 “scriptions longer than a Year, ac-
 “cording to the Account which I
 “took of her; and in that Time
 “having, as I understood, taken
 “many Doses of *Mercurius Dulcis*,
 “and her Parents, finding that all
 “her Disorders continually increas-
 “ed, about the end of *May*, in the
 “Year 1706. they desired me to
 “Visit her, and endeavour, if pos-
 “sible, to relieve her, tho’ she ap-
 “pear’d to them in a hopeless Con-
 “dition. When I came, I found
 “she had been confin’d to a Cradle
 “a

a long Time ; She had several
Ulcers ; She had not opened her
 Eyes in many Weeks ; and before
 that, they were so much disor-
 dered, that her Parents feared
 that she was Blind beyond Re-
 covery : She had lost the Use of
 her Legs, had no *Appetite*, and
 was *emaciated* and consum'd almost
 to Skin and Bones. This is the
 the true Notion of her Case, as
 well as I can compute and re-
 collect it. After some Time al-
 low'd for studying, and consi-
 dering all these *Symptoms* ; I pre-
 scrib'd some Medicines, which I
 thought agreeable and proper for
 her, and accordingly she made
 Use of ; whereupon, in a few
 Days, she sometimes forgot her
 usual Groans, and express'd some
 Signs of Merriment ; at the same
 Time her *Appetite* began to return,

“ and

“ and about a Month afterward she
 “ recover’d the Use of her *Legs* in
 “ a great Measure, and open’d her
 “ *Eyes* again, with both which she
 “ could see tolerably well, tho’ some
 “ Spots continued in them a consi-
 “ derable Time afterward.

The Reason why this Child was
 effectually Cur’d in a short Time,
 and has remain’d Sound ever since,
 I compute to be this; Because there
 was no large Quantity of the *Scro-*
phulous Acid in her Constitution, as
 might be judg’d by the slow Progress
 of it; whereas sometimes the *Scro-*
phulous Cause destroys the Patient in a
 short Time: On the other Hand, the
Blood Vessels and *Lympheducts* being
 in a great Measure empty’d by long
 Fasting, the Medicines operated
 more directly, and with little In-
 terruption, and consequently de-
 stroy’d

stroy'd the Cause of all her Disorders in a short Time,

*Of Scrophulous Tumours and
Ulcers, attended with other
ill Habits of Body.*

On the contrary, I was lately employ'd to serve two Children of Mrs. *Philippa Davies* of *Penryn*, and both of them had so ill a Habit of Body, that it retarded and protracted the Cure a long Time. Her Daughter, who was the Elder, had such an Inflammation joyn'd with *Scrophulous Ulcers* in her Arm, that hardly any Application would agree with it : At the same Time she appear'd of a pretty strong Constitution, but full of Humours, which supply'd the Ulcers with more than their natural Nourishment. Her Son,

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who

who, as I compute, was about Three Years Old, was Weak, and subject to Nocturnal Sweats, and his Constitution also appear'd more full of Humours than belong to a *Scrophulous Case* only ; the digested Matter which flow'd from the Ulcers of both these Children, became so Corrosive, as soon as the Ulcers were open'd, and expos'd to the Air, that it blister'd the adjacent Skin immediately : This sudden Corrosion of the Skin appears plainly to be promoted by the Nitrous, or other Aerial Particles fermenting with the *Scrophulous Salts*. However, their Ulcers healed one after another, and I apprehend them as good as Cur'd, tho' some *Tumour*, or small Ulcer, may, for ought I know, as yet remain, as the Reliques of the declining Distemper ; but I apprehend them to be such as
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are of no considerable Consequence, and the *Cause* being so well destroyed, I doubt not but all *Effects* will, in a short Time, totally vanish. In these Cases I found myself oblig'd to use various Means, and prescribe divers Methods, as the Distemper, and complicated Symptoms plainly requir'd.

Of Scrophulous Disorders in the Eyes.

Mr. *William Pearce* of *Tregonning*, a Gentleman, whose Friendship is Valuable, and I esteem it so, having enjoy'd it many Years without any disrespectful interruption, was pleas'd to consult me, some time since, concerning his Eldest Daughter, who was afflicted with *Sore Eyes*, proceeding from the *King's Evil*, as 'tis commonly call'd,

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besides

besides some *Tumours* in her Neck. After I had consider'd the Case, and found it to be *Scrophulous*, as it was suppos'd to be, she was committed to my Care; and that I might have the better Opportunity to relieve her effectually, 'twas thought fit that she should remain in the Town where I live, till her Cure appeared to be in a great measure effected: Having prescrib'd for her, according to the best of my Judgment, I observ'd some dawnings of Relief in a little Time; but it proceeded so slowly, that I thought it proper to make what Observations I could, to discover the Reasons of so retarded a Progress of the expected Cure. And accordingly I found, as her Relations also observ'd, That immediately after every *Full Moon*, the Disorders of her Eyes plainly encreas-

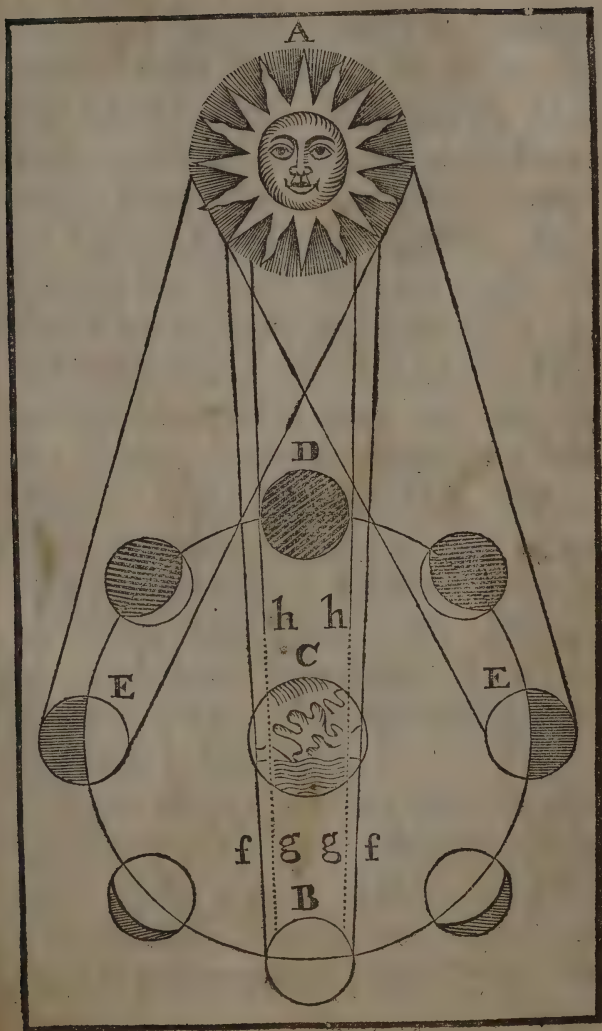
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ed, and continued so to do for several Months; so that the most hopeful Computation of Success, I took from the diminisht Disorder of her Eyes, which appear'd after every *Full Moon* successively; till at last she was so well recover'd, as not to need any further Remedies from that time to this. Tho' it may be convenient for her hereafter, to make Use of the same Methods, the more effectually to destroy the Cause of this *Scrophulous Disease*, if there appears any Sign of the Reliques thereof.

The chief Observation, deducible from this Case, is, That *the Moon has sometimes a considerable Influence on the Constitutions of some Persons*, and therefore I shall proceed to give

*A Mechanical Account of the
Natural Causes of the In-
fluence of the Moon on Hu-
man Bodies.*

We observ'd before, That the Patient's Eyes always appear'd more disorder'd after the *Full Moon*; let us therefore consider the Position of the *Moon*, when *Full*, in respect of the *Earth*, and of the *Sun*, which is describ'd in the following Table ; in which *A* represents the *Sun*, *B* the *Moon* at the *Full*, and *C* the *Earth* which is placed between them ; *D* shews the *Moon* when 'tis *New*, and interposes it self betwixt the *Sun* and the *Earth* ; so that no part of the *Moon* is at that Time seen ; *E E* the *Moon* in its *Quadratures*, when half of the illumina-
ted



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ted Part thereof reflects the Beams towards the Earth, as it moves in the Circle which describes its Motion, of which the Earth is the Centre. Now when the *Moon* comes to be in Opposition with the *Sun*, having the Earth betwixt them, as the *Moon* is represented at *D*, it reflects all the Light which its Hemisphere receives from the *Sun*, to the Earth; and this makes the *Full Moon*. This transient Description of the various Aspects of the *Moon* may serve for such Readers as have not been conversant with *Astronomy*; and those who know but a little of this Art, have no occasion for so much Information.

Now when the *Moon* receives the *Sun-Beams*, so as to reflect them all towards the Earth, as from *B* to *C*; The reflected Beams not only illuminate the opposite Hemisphere of

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the

the Earth, but must be allowed also in a great Measure to pass by the Earth, unless in an *Eclipse*; these reflected Rays of the *Moon*, passing by the Earth on all sides of it, tho' not equally, cannot but obstruct the Beams in some Measure, which are directed from the *Sun* to the Earth; and consequently the influence of the *Sun* on the Earth will be diminish'd.

To explain this by the forementioned Table: Suppose the Lines *ff* to be Sun-Beams passing near the Earth to the opposite *Moon* at *B*, the Pointed Lines *gg* may represent the reflected Rays from the *Moon* beyond the Earth, meeting and obstructing the Rays of the *Sun* at *hh*; an inconceivable Number of such reflected Beams, must needs retard a considerable Quantity of the *Sun's* Æthereal

Æthereal Rays, in their Passage to the Earth; and consequently the Motion and Heat which the *Sun* communicates to the Earth will be lessen'd, and the natural Effect hereof will manifest it self in *some Constitutions*; for if the efficient Cause of all *Animal* and *Vegetable Ferments* is owing to the Motion of the *Æther*, communicated to the Earth by the *Sun*; it follows, That a sudden Diminution of the Motion of that *Æther*, will partly suppress the foresaid Ferment; and hence will proceed, in some Constitutions, a deficiency in *Perspiration*; the Consequence of which will be such a *Turgescence* in the *Humours*, as we have describ'd in the *Eyes* of the foresaid Patient.

On the other hand, When the Moon's *Longitudinal* and *Latitudinal* Motions concur to place it
 I 2 betwixt

betwixt the Earth and the Sun, so as to intercept part of the Rays of the Sun from the Earth, whence ensues an *Eclipse* ; this Obstruction of the Sun's Influence on the Earth, will have an Effect on some Persons, like to that which we have describ'd before, and for the same Reasons.

While I was writing the foregoing Considerations, concerning the Influence of the *Moon* on human Bodies ; A Relation and Patient of mine, Mr. *Henry Panton* of *Middle-Row* in *Holborn* informed me, That he frequently observ'd that his Sight was weaker about the time of the *Full Moon*, and when the *Moon* shone clearly, than at other Times, tho' his Case is not at all *Scrophulous*, but chiefly a Weakness in the *Optic Nerve*. This Observation seems to confirm the Notion, That the reflected

flected Rays of the *Moon*, tho' they enlighten the Earth, are so far from communicating any Heat to our Bodies, that they oppose, and in some measure suppress that vivific Warmth and Ferment, which the *Sun*, by the *Æthereal Fluid* which it actuates, transmits to us. And as the Sun-Beams are dispos'd to extinguish common Fires, by compressing and repelling the internal Motion of the Particles of the combustible Matter towards their Centre, in like manner, without doubt, the Rays of the *Moon*, which consist of Particles of the *Æthereal Fluid*, the Pellucid, or Diaphanous Humours of the Eye being dispos'd directly to receive them, operate upon the *Spirits* of the *Optic Nerve*; and by compressing and restraining their Turgescence, may weaken the Sight of such Persons

as

as have not Strength enough of Spirits in the *Optic Nerve* to oppose an Influence which is commonly inconsiderable, and hardly to be perceiv'd.

The natural Causes of the Elasticity of the Air, and of the Flux and Reflux of the Sea, by the Influence of the Moon, Mechanically explain'd.

If we would take an occasion in this Place to philosophize a little out of our Way, it appears to me to be not unreasonable to conclude, That the like cooling and compressive Influence of the *Moon* operating upon the *Fermentative*, and consequently *Elastic* Collection of
Par-

Particles of *various Matter* which
 compose the *Atmosphere* ; hence
 proceeds an additional Gravitation
 or Pressure of the Air upon the Sea ;
 and the consequent Effect is such
 an Expansion of the Waters as we
 see, in the *flowing* of the Sea. But
 I rather encline to believe on the
 contrary, That the *Elastic Ferment*
 of the Particles of the Air, rais'd
 by the *Sun-Beams* which pass thro'
 it, is the *Efficient Cause* of the *Flux*
 of the *Sea* ; because the Elastic Force
 of the Air is very great and incon-
 ceivable ; and that the *Moon*, passing
 over a part of the Sea, by the means
 aforesaid, obstructs and damps the
Elastic Ferment of the *Atmosphere* ;
 and hence the Waters obtain
 their natural Liberty, and collect
 themselves again into an *Ebb* or
Reflux, till the direct Influence of
 the *Moon* has left that part of the
 Sea

Sea, and then a *Flood* succeeds again, from the renew'd *Elastic Pressure* of the Air upon the Waters. But I shall not proceed, at present, of these Effects

Causas penitus tentare latentes.

To return from this *Macroscopical* Digression, which however may illustrate the Influence of the *Moon* on Sublunary Bodies : Having proceeded thus far, I think it would be a needless *Tautology* to enumerate several Cases and Cures of the same Nature ; and therefore shall only add one Observation more at present, which is,

of

*Of hard and small Scrophulous
Tumours in several Parts
of the Body.*

In the Year 1703, I was consulted about a young Gentlewoman, who, besides other *Scrophulous Symptoms*, was afflicted with many small *Tumours*, or *Strumous Nodes*, in several Parts of her Body. These small indurated *Tumours* we may compute to proceed from the *Strength* and *Tenacity* of the *Sulphureous Fibres*, which the *Scrophulous Acid* had coagulated and condens'd; to which we may allow some Mixture of *Earthy Particles*: Supposing this to be a right Notion of the Cause of this Disorder, it will not be a surprising Account, that this Pati-

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ent was, in a short Time, reliev'd by Medicines abounding with *volatile* and *extensive* Salts.

The foregoing Account of *Scrophulous Diseases*, their *various Symptoms* and *Causes*, may be sufficient to convince any Judicious Reader, That a considerable *variety* of *Medicines* will be necessary to answer all the Intensions which these Disorders may require ; and what sort of Medicines those should be, I need not inform any Learned and Judicious Physician, who will be at the Pains to study the Cure of so troublesome a Distemper ; because I apprehend that this Disease is not confin'd to any *Specific*, as they call it, but may be cur'd by more Medicines than one, provided they abound with such Qualities as are apt to destroy the forementioned Causes :

Causes : And as for such Persons as *Empirically* pretend to *Physic*, without so much as the Knowledge of their own Ignorance : I have often lamented the *Public Damage*, which has proceeded from no more than a pretence to a Secret, which, if they had, would be like a Sword in a blind Man's Hand, who by ill Management might destroy the Person he would defend.

Besides, how unreasonable it is to expect regular Cures of these Distempers, from such Persons as are not acquainted with the *Rational Methods* of the *Medicinal Art* ; if we consider, That such various Symptoms, as we have describ'd, must needs call for various Methods to be occasionally apply'd : And that a Man, unlearned in this Art, should be dextrous at such sorts of *Prescriptions*, is as unreasonable as to believe,

lieve, that such a Person is naturally Elevated above the level of Mankind, and consequently can attain to the Knowledge of *Arts* and *Sciences*, without such long Labour and expensive Studies, as other Persons are forc'd to submit to, in order to qualify themselves regularly to serve the Publick in so importunate a Business.

But here I would not be mistaken, or suppos'd to make any particular Reflections, for it may easily be known, that I have no occasion to recede in any measure from the general Practice of *Physic*, and apply my self to any particular Part of it; especially when I consider, as I have before hinted, that there is frequently a Difficulty, and a tedious Care requir'd in the Cure of *Scrophulous Diseases*.

A N
E S S A Y
Concerning the
A N I M A L S P I R I T S,
A N D T H E
Cure of Convulsions ;
Together with
A Short A C C O U N T
O F T H E
Forms and Qualities
O F T H E
E S S E N T I A L P A R T I C L E S
O F
S A L T S and S U L P H U R S.

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Y A 2 2 3

(I)

A N

ESSAY,

Concerning the

*Nature and Composition of the
Animal Spirits, applicable
to the Theory and Cure of
Convulsions, and other Dis-
orders, to which they are sub-
ject ; with a short Account
of the Forms and Qualities
of the Essential Particles of
Salts and Sulphurs, by
which they are dispos'd for
their respective Operations.*

HAVING in the foregoing Trea-
tise mention'd *Coercive Sul-*
phurs and *Exterfive Salts*, which
Terms

Terms only implying the Effects of some particular Medicines, and beyond that, appearing to signify no more than such Philosophical *Cant* as we too frequently meet with in Physical Writings; which rather amuse and confound, than instruct the Reader, while they pretend to explain *ignotum per ignotius*, as when they talk of *Calidum innatum*, *Biolychnium*, or *Flame of Life*, and such occult Notions and Expressions; We should not have omitted to vindicate the foresaid *Epithets* from such an imputation of an obscure Signification, by demonstrating Mechanically the Operation of such Medicines, and explaining their *Forms* and *Qualities*, by which they are dispos'd and enabled to perform such Effects, and consequently setting forth the applicable-

plicableness of those Terms to Medicines which produce such Operations ; But that we thought fit to *reserve this Task*, and take an occasion to introduce it in the *following Discourse*.

WE have in the foregoing TREATISE spoke somewhat of the *Animal Spirits* ; it may not be unseasonable in this place, to proceed to explain the Nature of them, and apply those Considerations to the *Theory* of Diseases and Remedies, which the Spirits are capable of.

'Tis not possible to know any thing material of so exalted and noble a Fluid, as the *Animal Spirits*, but what must be collected from various Experimental Observations, concurring to discover the Ingredients and Contexture of Particles,

ticles, of which the *Animal Spirits* are compos'd and constituted. And these Observations must relate both to the *Effects*, which the *Animal Spirits* are naturally enabled to produce, and to the *Operations*, which Diseases or Medicines may have on the *Animal Spirits*.

If we consider the natural Effects of the *Animal Spirits*, the most surprizing Observation is that of *Muscular Motion*, which in vigorous Persons shews, what a vast Force the *Animal Spirits* have, in actuating the Limbs of the Body with so great Strength and Agility.

The *Pains* and *Sensible Pleasures* which the *Animal Spirits* are disposed for, demonstrate the Accurateness of the Principles of which the Spirits are compounded: And the quick Perception of the *Senses* must

must needs be the effect of a *Fluid* wonderfully *exalted* and *refin'd*, and extending the *Nervous Vessels* with a just Degree of *Turgescence*.

This Account of the Effects and Operations of the *Animal Spirits* may be sufficient in this Place: Let us therefore proceed to consider the Alterations which *Medicines* and *Diseases* are capable of producing in the *Animal Spirits*.

And *first*, The most Remarkable Observation of the natural Effects, which Medicines have on the *Animal Spirits*, is that of *Opium*, which sometimes contributes to the *strength* and *agility* of the *Animal Spirits*, sometimes excites them to *irregular* and *distracting Ferments*, as I have observed in *Hysterick* Persons, and sometimes, if taken in a quantity beyond what the *Spirits* are dispos'd to bear, the Sulphurs of the *Opi-*
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um encumber and overload the *Spirits* with a Mortal Oppression, so that they never recover their natural Expansion again.

This shews that the *Spirits* are capable of being condens'd and totally suppress'd.

Secondly, On the contrary, Volatile *Alcaline Salts* seldom fail to excite the expansive Ferment of the *Spirits*.

Thirdly, The irregular Ferments to which the weakness of the Nerves in *Hysteric* Persons betrays and exposes them, are capable of Reduction by *Antihysteric* Medicines.

Fourthly, *Madness*, and a *Furious Delirium*, may be corrected and removed by Volatile and Spirituous *Acids*; which seems to testify, that the *Spirits*, being incens'd into the utmost Degree of Effervescence, are not beyond the reach of a *Coagulative*

lative Acid, capable of reducing them into Order and Tranquillity.

These Observations may be sufficient to demonstrate, That the *Animal Spirits* are a Fluid, in a great measure, subject to such Ferments and Alterations as the Blood is, out of which they are extracted and secern'd ; and we may assert it, as a just Computation, That the *Animal Spirits* are a Contexture and Composition of Volatile Salts partly Alkaline, and partly Nitrous, and rarify'd Sulphurs, united with a small quantity of Watry Particles.

And all this we will endeavour to prove by the following Considerations ; viz.

That the Salts of the *Animal Spirits* are Volatile, may be allow'd from all the Observations that can be made of the said Spirits.

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That they are *Alcaline*, we may judge from several Observations : For *first* we find an *Acid* condenses them, and suppresses their irregular Ferments. *Secondly*, If they were *Acid*, the *Salts* of the *Spirits* would coagulate their own *Sulphurs*. *Thirdly*, That these *Salts* are not chiefly *Nitrous*, we may collect from the Observation, that the Honourable Mr. *BOYLE* has made, which was, That *Nitrous* Ingredients added to Water, make it Colder than it was before.

Now if the *Salts* of the *Spirits* were chiefly *Nitrous*, the Contact of *Nitrous* Ingredients would rather increase, than cool and retard their Motion.

That the *Sulphurs* of the *Animal Spirits* are *rarify'd*, We may conclude from the nature of *Spirits* in general, such as *Spir. Vini*, and from
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all other Observations, especially from these, that a small Quantity of *Volatile Alcaline Salts* will raise the Turgescence of the Spirits ; and a small Quantity of *Coercive Sulphurs*, such as *Opium* abounds with, will restrain and compress their Ferment : For if the Sulphurs of the Spirits were not *highly rarify'd*, a small Quantity of the foresaid Salts and Sulphurs could not produce so considerable an Alteration in them.

That the *Union* of *Salts* and *Sulphurs*, in the Composition of *Animal Spirits*, is not without the interposition of some few *watry* Particles, actuated by the *Volatile Salts*, we may infer from the preceding Observations ; for no Fluid appears to be coagulable nor fermentable without an Ingredient of some watry Particles ; to which we may add, the Indisposition of *Salts* and *Sulphurs*

phurs alone to an amicable Contexture, without the interposition of some Parts of an Aqueous Fluid.

I apprehend, that this Account of the *Animal Spirits* may agree with all the Observations which can be made concerning that Noble *Fluid*, which is, as it were, an establish'd Intelligencer betwixt the *Soul* and the *Body*.

Having dispatch'd the foregoing Considerations, and asserted that the *Animal Spirits* are a Fluid, which is compos'd of a Contexture of volatile Salts and rarify'd Sulphurs united with an Aqueous Vapour ; We go on in the next place to consider the *Essential Particles* of Salts and Sulphurs.

Of the Forms and Qualities of the Essential Particles of Salts and Sulphurs, whereby they are Mechanically dispos'd for their respective Operations.

Every *Essential* Particle of Salt is a Minute Corpuscle, somewhat Solid and Pointed.

From the variety of the *Points, Pores, Surfaces, Solidity* and *Magnitude* of the Saline Particles is produced the *diversity* of Salts; and from this diversity are deriv'd all sorts of Fermentations, the Efficient Cause of which we have not leisure at present fully to describe.

Having thus premis'd, That a *Variety* of *Saline Particles* is requir'd in a *Fluid*, to dispose it for Fermentation;

tation ; if we allow a Ferment in the Animal Spirits, as I think it cannot be doubted, we must also acknowledge there is a *diversity* in the Volatile Salts, which the Animal Spirits naturally contain ; and this is a Notion which we have taken Care to make way for, in the preceding *Considerations* ; for tho' the Volatile Salts of the Animal Spirits are not chiefly *nitrous*, yet 'tis not improbable that the *nitrous* Salts admitted into the Blood by Respiration, may in some Measure pass into the Spirits ; And hence it comes to pass, That as the *nitrous* Salts of the Air contribute to render the Blood of a florid, red Colour ; such florid Blood is most productive of Animal Spirits, or at least, Spirits of a strong Ferment ; whence proceed agility and strength of Body. But this Matter cannot be

be sufficiently treated of, without some previous Considerations; or rather a true and compleat *Theory of Respiration* computed from the Effects and Suppression thereof.

Having therefore found it necessary to grant, that there is a fermentative Diversity of *volatile alkaline* and *nitrous Salts*, in the Composition of the Animal Spirits; for that some nitrous Particles are qualify'd to ferment the Animal Spirits, we may be satisfy'd from the Pain of a new made Wound, which Pain appears to proceed from a violent Ferment of the *Nitre* of the Air operating upon the Spirits of those nervous Parts which are wounded and expos'd to it; We hasten to enquire into the Make and Disposition of *Sulphureous Particles*.

*Of the Forms and Qualities of
the Essential Particles of
Oils and Sulphurs.*

I have in the foregoing Pages several times spoken of the *Fibres* of *Sulphurs* ; in Vindication of which Expressions, I think fit in this Place to assert, That every Particle of *Oil* or *Sulphur* is a *flexible ductile Fibre*, and this Definition, I hope, will be sufficient to afford a rational Solution of all the *Phænomena*, which *Oils* or *Sulphurs* are naturally adapted to produce.

From this *Flexibility* and *Ductility* of *Sulphureous Fibres*, arises the *Flexibility* and *Ductility* of Bodies in which they reside : Hence a piece of *Wood*, for Instance, is flexible, and capable of retaining an Impression ;

sion; but when the Fire has drawn out the Sulphurs, and leaves it in the Form of a Coal, it loses those Qualities, and becomes hard and brittle. That *Metals* also contain a Sulphur, tho' not Inflammable, by reason of the Weight of their Saline and Earthy Ingredients, we may conclude from this Observation, That *Steel* being a long Time infus'd in Wine, will render it Sweet; which Quality cannot be imparted to an *Acid*, as Wine is, without a Communication of Sulphurs.

From the different *Magnitude, Strength, Tenuity, Grossness, dense, or thin* Contexture or Complication of these Fibres, proceeds the *Diversity* of *Sulphurs*: Hence it is, that a gross and dense Sulphur, as common Oil is, produces a strong Light, and in our Bodies, encumbers

bers fermenting Particles ; on the other hand, *Spirit of Wine*, which is a Sulphur highly rarify'd, being light, and easily agitated by the *Æther*, which it contains, excites a Heat into our Bodies ; but being kindled into a Flame, creates but an obscure Light, because the Fibres of the rarify'd Sulphur are not strong, and dense enough to put the *Æther* into so violent a Motion, as groffer Sulphurs are capable of producing.

The *Inflammability* of Sulphurs or Oils shews, That their Fibres are so closely Complicated and Entangled, that the *Æther*, which passes between those Fibres, being put into a rapid Motion by Fire, cannot get off without breaking those Fibres in Pieces ; and as some Parts of the *Æther* fly off with the tatter'd pieces of the Sulphureous Fibres,

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at the same Time other Particles of the *Æthereal Fluid* entering into the adjacent Sulphurs, which are heated by the last inflam'd Fibres, hence the Flame is continued.

This Observation implies, That the *Essential Particles* of Sulphurs are lyable to be destroy'd by Inflammation; that is, the Parts of Matter, which compose a Sulphureous Fibre, may be so broken as to incapacitate, or unqualify it for any of the natural *Phænomena*, which a Sulphur is capable of producing: But it does not at all follow from hence, That a Sulphur in its natural State, is not an *Essential Principle* of *human Bodies*, because our Bodies cannot subsist without such Particles of Matter as we call Sulphurs.

Now, tho' such Parts of Matter, as compose Sulphureous Fibres, are capable of being so broken, that
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the Form and Quality of the Fibres are destroy'd, as when their Parts are dispers'd in the Air by Inflammation ; yet we have no reason to suppose, but that those parts of Matter are still capable of re-uniting ; and hence there is no loss of Sulphurs in Nature ; which might have been an agreeable Speculation for JOHNSTON in his Book *de Constantia Naturæ*.

What has been said relates only to *Sulphurs* consider'd simply, without the Contexture or Mixture of any other heterogeneous Particle ; but such Sulphurs are rarely to be found, without a Complication of some *Saline*, *Watry* and *Earthy* Particles : Thus in *Milk*, the watry Parts prevent the Inflammability of it ; in *Oil of Cinnamon* the Salts produce a Sweetness ; and according to the diversity of *Sulphureous*

reous Fibres, and the Diversity of *Saline, Watry, or Earthy Ingredients*; and the various Contexture of these, the Sulphurs are qualify'd for different *Phænomena*, but as long as the *Phænomenon* is chiefly consider'd as the Effect of a *Sulphur*, the part of Matter which produces that *Phænomenon* may be call'd a *Sulphur*, together with an Epithet specifying such a *particular Effect*; and from this Consideration we give some Medicines the Name of *Coercive Sulphurs*.

The Effects therefore of a *Coercive Sulphur* we shall endeavour to explain, by considering how it is *mechanically* adapted for a *Coercive Operation*, and particularly treat of such *Coercive Sulphurs* as are in some degree *Bitter*.

Bitters are compos'd of a *Sulphur* and a *Salt*, which is common-
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ly either of a *Saline* or *Alcaline* Nature.

Thus it may be observ'd in *Fevers*, sometimes the *Water*, whilst it is warm, is *saltish*, and when cold, it turns *bitter*, because the Heat prevented the Coherence of the Salts and Sulphurs, which the Cold united, and made a *Bitter* ; these Particles being united, and the Salts involv'd, and cohering with the Sulphureous Fibres, One Consequence will be, that a *bitter* Particle is heavier than either that of a *Salt* or *Sulphur* alone, because it is made up of Both ; and hence it is, that few *Bitters* will rise in common Distillation, or be lost in an open Decoction, as we may observe in Compound *Gentian Water*, which has very little Bitterness, but the *Extract* which remains behind, is violently bitter : And for
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the same Reason, the bitter Virtue of the *Cortex* is not lost in the longest Decoction of it.

Now as the Points of the Saline Particle of a *Bitter* are dispos'd to enter and fasten among the Sulphureous Fibres of another Mixture ; so the Sulphureous Fibres of the Bitter are qualify'd to hold fast those Particles among which they are involv'd ; and by this Constriction the Particles of a fermenting Liquor are preserv'd in their Union, which the fermenting Salts would otherwise disunite and disperse. By the like Operation, the Bitter Particles of *Hops* restrain the Denudation of the Acid of *Beer*, till the Sulphurs of it are exalted to a considerable degree of Rarefaction or Tenuity, which we call a *SPIRIT*.

On the contrary, *Exterfive Salts* have an Effect quite different from that of *Coercive Sulphurs* ; because an *Exterfive Salt* is compounded of an active *Acrid Salt* involv'd in a considerable *Quantity of Sulphurs*, and this Mixture is dispos'd for a cleansing Operation, as that of common Soap is, in which the *Lixivial Salts* are qualify'd to penetrate and disunite the Particles which are to be wash'd away ; and on the other hand, the Sulphurs of the Soap are as well adapted to involve and carry off the offending Particles : For as the Fibres of the Sulphurs are not firm enough to penetrate and separate one Particle from another ; so neither are the Salts fit to involve and convey away the Particles when they are disunited.

From the foregoing *Mechanical* Explication of the Natural Operation

tion of *Coercive Sulphurs*, we may compute the Effects of some Medicines, which have a *Coercive Quality*, tho' not in so great a degree as That of Bitters : For all Medicines which are in any degree astringent, may be allow'd to contain a *Coercive Sulphur* : And thus the Chief *Cephalic Medicines* are of a *Coercive Nature*, whereby they strengthen the *Nerves* and the *Glands* of the *Brain* ; and hence the *præternatural Ferments*, and irregular *Excursions* of the *Animal Spirits* are restrain'd and reduc'd.

From what has been said, we may collect, *First*, That when the *Animal Spirits* in general are in too great a Ferment, *Acid Spirits*, which are qualify'd to intrude among the *Animal Spirits*, appear most proper for reducing them into Order and Tranquillity.

Thus

Thus I have observ'd *Acid Spirits* in a raging *Delirium* in a Fever have recompos'd the Animal Spirits, tho' in a sleepy *Delirium* I should think them improper.

To enforce the foregoing Notion of the Use of *Acid Spirits*, I think it may not be amiss to mention an Observation which I made about six Years agoe, in an Experiment upon a *Mad Dog*, which I was desir'd by a very Worthy Gentleman to endeavour to cure, and I think no Experiments on Brutes irreputable ; having turn'd over a great many of my Books, to find some Notion of the *Madness* of a Dog among the *Antient* and *Modern* Physicians, and finding nothing material, I gave Orders at first that the Cure should be attempted by *Acids*, such as *Creme of Tartar*, and *Coercive Sulphurs*, viz. *Castor and Sage* ; this
Method

Method seem'd somewhat successful, but I soon alter'd it, and order'd a considerable quantity of *Spirit of Vitriol*, and sometimes *Spir. of Nitre dulcify'd*, mixt with Water, to be given to the Dog every day about a Fortnight ; upon which the Dog recover'd daily, and liv'd a Year ; but after that was seiz'd again with Madness, and dy'd.

I might here propose the like Method to be prescrib'd to Persons who have had the dismal Misfortune to be infected with a *Canine Madness*.

Secondly, When the Ferment of the Animal Spirits is too much depress'd, *Volatile Alcaline Medicines* and *Cordial Spirits* are proper to be made use of.

Thirdly, In *Scorbutic Convulsions*, when the Spirits appear deficient, and in all probability encumber'd in
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their free Passage thro' the Fibres of the Nerves, as we have describ'd the Disorder of the Spirits in *Paralytic Cases*, in the foregoing Treatise ; 'tis necessary to add *Spirituos Antiscorbutics* to *Cephalic Medicines*, whether the Case be *Paralytic* or *Convulsive* : These being well chosen, and mixt as the Symptoms require, I have observ'd have seldom fail'd of Curing such Disorders of the Spirits proceeding from a Scorbutic Habit of Body.

Fourthly, When *Convulsions* proceed from a great Putrefaction of the Blood, we must endeavour by all proper Means, to free the Blood from that Corruption ; which the following Observation confirms.

A Young Gentleman, a Relation of mine, some Years since being afflicted with *Violent Convulsions*,
was

was pleas'd to consult me, in order to be cur'd of so terrible a Distemper. In this Case I did not entirely rely on *Coercive Sulphurs*; but having prescrib'd warm *Alexipharmics*, together with *Cephalic Medicines*, and this Method being made use of for some time, tho' the Fits did in a few days appear more moderate, and return'd less frequent, yet the Distemper was not effectually Cur'd; till very large purulent Eruptions discharg'd the Corruption of the Blood; and since that He has had no Symptom of any *Convulsive Disorder*.

Fifthly, When the Spirits are hurried into *Hysteric Disorders*, *Coercive Sulphurs* appear most beneficial; and in these Cases, a *Julep* made with *Tincture of Castor*, is commonly most effectual, especially if the Patient sleeps immediately after taking it. *Sixthly*,

Sixthly, When there appears too great a *Ferment* in the *Blood* as well as the *Spirits*; and hence the *Hysterical* and *Convulsive* Disorders are continu'd a long time; it will be convenient to add *fixt Acids* to *Cephalic*, *Coercive* and *Antihysterical* Medicines. Thus I have found Success sometime since, in relieving a Patient, who lay two Days in violent *Hysterical* and *Convulsive* Disorders, by adding *Creme of Tartar* to an *Antihysterical* Mixture.

In the last Place, I might add *Observations* of the *Effectual Success* of some Medicines, which in Ten Years Practice, I have observ'd, never fail'd of Curing the *Convulsions* of *Infants*; But I consider, that the Sight of such a *Prescription*, without a Rational Account of its *Ingredients* and *Operations*, might create in the *Reader* a disadvantageous Notion of the Medicine.

I shall therefore conclude with an Apology for Writing the foregoing Sheets with less Care and Accuracy than the Subjects may deserve ; and this perhaps is more disagreeable to my self, because in my *Former Writings* I have endeavour'd to be more Accurate, as the Nature of the Works requir'd.

I hope, at least, that in the foregoing Treatises the *Learned Reader* will find some *New Philosophical Discoveries*, and *Useful Observations*, which might deserve to be explain'd more at large ; if not, I may plead Brevity for my Excuse.

F I N I S.

I shall therefore conclude with
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George John
Spencer
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